PENNA TURN PIKE

Pennsylvania Turnpike Commission
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

In the Matter of WT Docket No. 24-240)
NextNav Petition for Rulemaking Lower 900 MHz Band) RM-11989
(902-928 MHz))

Pennsylvania Turnpike Commission is a current licensed user of the 902-921.75 MHz LN Radio Service and wishes to file a Comment in FCC WT Docket 24-240 in OPPOSITION to the Petition for Rulemaking as outlined by NextNav's Petition and Supplemental Rules filed June 6, 2024. We have been using this band for years without issues for identifying vehicles, but now NextNav is trying to make extensive changes to the regulatory and operational environment that clearly will cause interference to our operations with their proposed 5G PNT and cellular buildout.

As detailed in the NextNav Supplemental rules, and in discussions with industry since, interference will clearly exist and the many discussions or statements of NextNav have not shown any solution that will prevent interference with a buildout of their proposed 5G network given their objective is to communicate over the same areas with high power from base stations even miles away with user or fixed equipment in or close to the vehicle.

While the technical details are numerous to show interference to the current generation of tags and readers, there is also concern that no reasonable filtering improvements to tags or readers will provide the required performance levels required for tag reading, especially for high-speed vehicle identification in congested roadways. As a reminder, the details supporting these statements include:

- 3,850 to 20,000 Watts ERP being proposed for base stations located from 918 – 928 MHz
- Handheld Cellphones TX at 600 mWatt (+23 dBm) near windshield mounted tags
- NextNav is proposing cellular 5G style buildouts and leased data usage to mobile communications providers where their base stations would be located with many locations being within the zone where interference could occur.
    - Note, with higher power and more stations, NextNav is greatly expanding the interference as compared to the 2013 allowed limits of their current installations
- No Guard Bands – their 5G signals from base stations bleed into the AVI Tagging band
- Tags of today, and as could possibly be redesigned, would not have the ability to mitigate or filter most potential NextNav signals from reasonably located cell sites to achieve their communication objectives.
- The longer range ASTMv6 Truck Weigh Station Bypass tags are much more sensitive meaning even greater interference levels would be expected, along with larger protection zones.
- Even Part 15 users in many areas would be interfered with
- NextNav has proposed very onerous rules with priority against practical operation by currently licensed Part 90 and Part 15 users (where the safe harbor protection is removed) and performance impacts are expected in the proposed RF environment, meaning many situations will be totally jammed.

NextNav needs to look to other 5G bands such as 600, 700, 870 MHz where PNT could be included today on many of those existing 5G bands.

The FCC asks if simply having NextNav pay for retuning would suffice, but the points made above show that interference to tags and in some cases retuned readers would be so significant that operation could not continue even with retuning since jamming to the tags from both downlinks and uplinks could occur under many conditions. There could not be retuning of tags, and tags are not possible to redesign with sufficient filtering to prevent devastating interference from NextNav.

Furthermore the squeezing from 12 MHz to 11 MHz means systems with 3 or more readers (of which the majority tolling systems have today at most locations) would mean that performance would be impaired due to multiple frequencies needed for backscatter. Additionally, most of the TDM protocol and all ASTMV6 tags would probably be interfered with.

NextNav Proposes Field Testing, but tag sensitivity and communication success with normal signal to noise ratios and the high NextNav Proposed base station power under the rules or even typically used would mean that most all locations within several miles would experience interference. Additionally, tags would incur interference from in-vehicle mobiles, handsets, or nearby fixed links passing thru the tag read zone of the fixed readers.

NextNav is proposing co-equal rules, but they are a very high-power broadband service serving a large area. What is really needed is clear protection and priority to the licensed Part 90 LN Radio Service Licensees, referred to as non-M-LMS. These non-multilateration backscatter systems should have protection at a higher level than a 5G service since there are so many alternative 5G frequency bands to use.

The FCC recognizes that interference protection is normally afforded to incumbent licensees. For example, when testing or higher power operation from airplanes is requested (STA callsign WX9XAV, special condition 6), the FCC routinely requires Prior Consent from incumbent licensees within 100 miles given line of sight. Similar Protection to LN Radio Service Licensees is requested if this petition is not totally rejected.

It is hard to see how NextNav can solve the problems of interference to Part 90 LN Radio Service Licensees, or even Part 15 licensees, to allow proper operation of these existing systems. No evidence has been given to show the high-performance levels of tolling or other AVI operation can be preserved if NextNav is allowed to operate as proposed. AVI reader installations are all over the urban and rural areas on railroads, at airports, facility gates, parking lots, any many other places away from highways or the old tollbooth locations of previous years, now being removed and more gantry installations going in over wide areas of toll roads.

Since AVI toll Tagging is used Nationwide, as more development occurs, more tolling installations will be needed in new areas that also require protection from the NextNav High Power Signals. The best way to insure this is to reject the NextNav Petition.

NextNav proposed rules are inadequate to provide protection to incumbent users.

NextNav failed to realize how intensive the spectrum is used in today's world of Part 90 licensed electronic non-stop tolling and connected Part 15 devices. The FCC should reject this petition.

The costs to mitigate are enormous:

Pennsylvania Turnpike Commission has hundreds of millions of dollars of installed readers, tags, systems and operations involved to change.

Our systems are designed with the current 902 to 928 MHz RF environment, and any forced migration to another band would not only have increased costs for redesigned equipment, plus massive costs of installation, and transition operations would be very costly.

Industry is concerned with not only performance levels but also the cost to collect, especially when tags are missed. The 915 MHz band has proven to be a cost-effective and reliable technology solution for many uses and should not be disturbed.

- NextNav's Petition & Rules implies more missed tag reads, driving more costly image reviews.
- NextNav's Petition & Rules will cause Increased revenue leakage resulting from decreased system performance

NextNav has plenty of other 5G bands and existing frequencies under existing rules with which to operate.

In summary, please reject the NextNav Petition.

Mark P. Compton
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